



66 On the horizon is something we call generative design, computer-based design programs that can automatically generate design

- Dominic Snellgrove

Cameron Chisholm Nicol managing director Dominic Snellgrove. Photo: Gabriel Oliveira

# VR, AR, software and the future of design

Technology is elevating the architectural experience.



Katie McDonald katie.mcdonald@businessnews.com.au

THE real estate sector may have incorporated the use of virtual reality and 3D imaging only recently, but some Perth-based architects and developers are already integrating the technology across all stages of their property projects.

Blank Canvas Studios has been developing capabilities in architectural visualisation through 3D imagery and animation since 2017, through studios in Perth and Sydney.

The group's portfolio includes work for residential and commercial developers such as Blackburne, Mirvac, Finbar and Vicinity Centres, with the use of 3D visualisation helping create more photorealistic building renderings.

Last month, ASX-listed Vection Technologies, which has offices in both Australia and Europe, acquired Blank Canvas with a plan to leverage its 3D rendering and visualisation within its existing VR and augmented reality (AR) services

Blank Canvas managing director Paul Clayton said combining 3D photorealistic imaging with real-time VR and AR technologies created multiple applications for the design sector.

"If you're an architect, imagine being able to see a building brought to life in photorealistic detail in real time, while you're actually designing it," Mr Clayton told *Business News*.

"Or bringing in a placemaking consultant to design shared spaces and environments collaboratively in real time.

"This instant visual 'feedback' not only creates incredible time and cost efficiencies, it allows for more experimentation."

That experimentation, he said, could ultimately lead to an improvement in design quality and even better urban and city planning.

"The more realism we can build into the visualisation of design, the more informed buyers can be before they invest in their new apartment residence or custom home," Mr Clayton said.

"It's also about holding the industry to account; if what's delivered in the end doesn't meet or exceed what we're able to visualise, buyers quite rightly have some recourse. "More importantly, the market feedback you get from buyers when they see beautiful renders or animations for an elegantly designed building helps architects and developers better understand what's going to resonate with the market."

According to realestate.com.au's 2020 Developer Insights Series Research, nearly half of all apartment buyers last calendar year purchased an apartment without visiting a physical display suite, up from 27 per cent in 2019.

Mr Clayton said the benefits of increasing the integration of technology also extended to supporting a more agile community feedback process.

"Imagine being able to engage the community in a collaborative design process to overcome concerns around density, height and shadows and other potentially controversial issues in days and weeks, instead of months," he said.

#### **Applications**

Felipe Soto, design director at Perthbased Space Collective Architects (see page 40), said COVID-19 had accelerated the use of VR technology within the

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industry, particularly in marketing properties to overseas investors.

Mr Soto said the technology had also been used during construction to show a structure's progress, with one client installing cameras on site, enabling a real-time overlap view of the physical structure and the architecture model.

During the past decade, Space Collective director Tom Letherbarrow said, architects had started to transition away from 2D drawings and physical models, traditionally staples for architects in developing and presenting

"Now we're working in 3D; that's schematic design but also now in the actual working drawing stage of buildings," Mr Letherbarrow told Business News.

"The actual documentation is now done in 3D, forming an incredibly detailed model.

"The next stage is creating that virtual world."

Mr Letherbarrow said the technology was still in its early stages of use in Perth, but industry had become more receptive in understanding its potential, for buyers, architects and architecture students.

"We can get a better feel for the buildings we're designing, a real

appreciation of materiality, the light at different times of the day ... all of this can be virtually displayed," he said.

"It also helps technically to see where there may be clashes between structure and surfaces; you can look at that in real time, so you can walk around your building and realise that corner isn't right, which may not be picked up from a 2D drawing.

"And even with a 3D model, you might miss that, but it's hard to miss when you're walking around a virtual model of the building, looking at every single corner."

Cameron Chisholm Nicol is another local design practice that's been a leader in this space, investing in VR capabilities several years ago.

CCN managing director Dominic Snellgrove said one of the biggest benefits had been the technology's ability to convey complex ideas.

CCN recently implemented a displacement air system concept within DFD Rhodes' new five-storey office building on Ord Street in West Perth.

Currently under construction, the 3,000 square metre office will feature air supply diffusers located near floor level, rather than a conventional overhead air-conditioning system that essentially mixes old air with new.

Mr Snellgrove said by using a displacement system, diffusers pushed air vertically to then be extracted through the ceiling, offering an improvement in air quality of between 40 and 100 per cent.

The concept had been used throughout Europe for decades, he said, but there had been little success convincing Perth clients to embrace the innovation.

"The ability to walk the clients around the building was instrumental in getting approval," Mr Snellgrove told Business News.

"In the past it may take a significant amount of material, drawings and evidence to communicate how a building would look and feel; the ability to put on a headset and walk through the project shortcuts a lot of challenges we have in communicating our projects."

Mr Snellgrove said CCN had been using a combination of Revit (building modelling software) and Enscape (realtime rendering and VR), particularly in the building documentation phase.

The technology enabled his team to walk around buildings (like a video game) either through 3D VR goggles or via a desktop monitor.

"We've been using that for a long time but I'm noticing more offices now finding it more accessible and usable," Mr Snellgrove said.

"On the horizon is something we call generative design, computerbased design programs that can automatically generate design."

That involved plugging in site parameters, with the software then generating a design response based on any restraints associated with that site.

"The complexity of the thought process that goes into understanding briefs, site conditions, statutory planning, the economic models associated with highest and best use ... the amount of variation is just so enormous, requiring such creativity from the management of so many different inputs, that I think it'll be some time before an algorithm can adequately address those issues," Mr Snellgrove said.

And when it came to imitating the original and aesthetic thoughts of an architect, Mr Snellgrove said it was a possibility, but hopefully a way off.

"A brain is only a collection of neural connections," he said.

"And once technologies can replace and replicate the scale and complexity of those neural connections, then they'll have a brain."

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## Staying ahead of the curve remains Cedar Woods' formula for success.

Offering products that embrace new and emerging styles has been Cedar Woods' formula for success for more than three decades. Now a truly national developer, Cedar Woods has built a reputation for creating developments that hold broad

customer appeal. This has been achieved via a relentless focus on the customer and a tenacity to deliver what the buver wants. ahead of the curve.

Cedar Woods' Managing Director, Nathan Blackburne, said, the Company has a wide range of products on offer, that suit varying price points and lifestyle

"Our strength is our ability to respond to market trends nimbly and develop new housing communities that reflect customer needs, whether that be a move to more sustainable living in an environmentally conscious community or a built form, architecturally designed townhome addressing the shifting lifestyle preferences of Australians.

Cedar Woods' ability to respond to underlying market trends has been integral to remaining relevant especially when it comes to architecture and overall design.

This is evidenced by Cedar Woods' Bushmead development which was conceived after the Company identified a movement towards more sustainable living. Bushmead responded to the environment conservation trend by offering blocks in a bush setting that gave buyers the tranquil, environmentally sustainable lifestyle in a well-connected location 16km from the Perth CBD.

In recent years, Cedar Woods has been quietly responding to state governments' pursuit of infill development and development around new rail infrastructure, investing in strategic, major landholdings.

'Cedar Woods understands the emerging needs of new home buyers and how to create a high-quality built form product that appeals to them", said Mr Blackburne.

New apartments at Cedar Woods' Incontro in Subiaco are using the natural climate and smart passive design to make sure owners are not reliant on-air conditioning and power. Townhomes are designed according to orientation, maximising daylight while providing shade during summer. Cedar Woods has also identified that common areas and green spaces where neighbours can connect is an important consideration for prospective buvers. In response, Incontro features Little Green, a stretch of parkland flowing through the spine of the development, creating a connecting passage for residents to socialise outdoors and get to know their neighbours.

Cedar Woods continues to grow and thrive in a range of markets by delivering projects that address customer needs. fill gaps in the market and are designed in line with the latest urban living trends.





**6** The advantage is we complement each other; we bring different skills in the way we think

-Felipe Soto

Mandy Leung with Tom Letherbarrow (centre) and Felipe Soto. Photo: David Henry

# Space Collective puts plan in motion

Three former directors of one of the state's largest architecture practices have struck out on their own.



Katie McDonald katie.mcdonald@businessnews.com.au

SOMETIMES all it takes is a glass of wine to turn an idea into a solid business plan.

At least that was the case for Felipe Soto and Tom Letherbarrow, who had worked together at Hillam Architects, one of the state's biggest architecture practices, for the past several years.

The pair had been in discussions

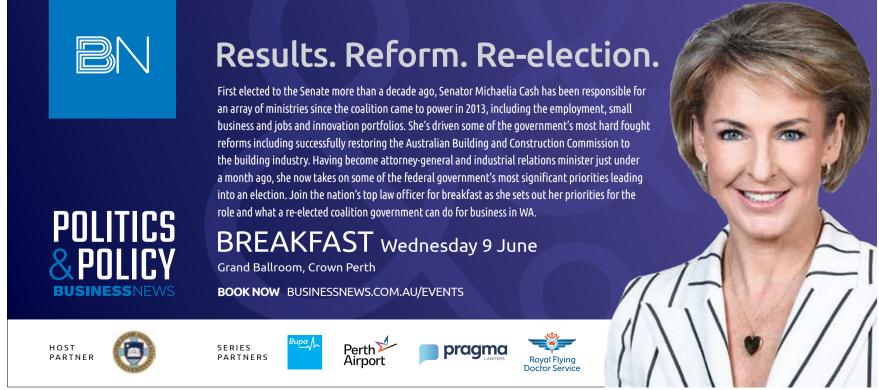
over the possibility of starting their own design studio for some time, especially during lunch breaks in a Subiaco park.

But it wasn't until recently that they decided to take the next step.

"We'd had a few glasses of wine and said, 'Why don't we give it a crack?" Mr Soto told *Business News*.

"It was the right time in our careers after years working for a successful company like Hillam, and the right time in the market and in Perth to put our name out there.

"We were chatting years before, but it wasn't such a great moment. We were growing our families ... so we put it on pause for a while."



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Messrs Soto and Letherbarrow later brought fellow former Hillam director and a current Western Australian councillor for the Australian Institute of Architects, Mandy Leung, into the fold.

Together, they launched Space Collective Architects in March this year.

Mr Letherbarrow said Perth's strong economic performance through the pandemic, and the subsequent spike in property activity, had presented an opportune time to launch the new venture.

"What's happening in property and the demand for good quality housing stock was one of the big pulls, there's obviously an opportunity there," Mr Letherbarrow told Business News.

"And we think there's a real market for a design-focused, quality architect that does really good mixed-use and residential projects, and that's got a commercial slant to them as well.

"Hillam and MJA Studio do them [those projects] really well ... but for a city with the high demand at the moment, we feel there's a real opening in the market.'

Operating from an office in Shenton Park, the practice already has about 10 projects on its books spanning

Scarborough, Como, Cockburn and the western suburbs.

"We're all advocates for Perth becoming a better city; we've looked into the problems of sprawl ... and the opportunities for residential projects of various scale to contribute to the densification of Perth urban infill projects, regeneration, and making better places to live," Mr Letherbarrow

"That's one of the founding drivers for the practice."

Mr Soto said multi-residential and mixed-use project experience was limited in Perth, which presented an additional gap in the market for Space Collective to fill, pointing to the trio's diverse skill sets and backgrounds.

Ms Leung, originally from Hong Kong, specialised in technical compliance; British-born Mr Letherbarrow mostly focused on operations and business development; and Mr Soto largely provided the creative brains, applying a cosmopolitan flair to design, influenced by his South American heritage.

"The advantage is we complement each other; we bring different skills in the way we think," Mr Soto said.

"Another thing that is important to us is we want to be seen challenging

the way the typical collaboration is put together. We see the opportunity to collaborate with different architects, artists, landscapers, consultants ... in different areas.

'We don't want to be seen as an in-house machine; we've identified [that] if you bring the right people to the table, you're going to get a much better outcome."

For example, Mr Soto said, there could be scope on a residential project to then collaborate with an external interior designer.

"It's about bringing people together into a multi-residential environment to have a different look at the same brief," he said.

Mr Letherbarrow said it was that collective philosophy that ultimately influenced the business's name.

"It's a play on words," he said.

"Architecture is a collective of spaces but it's also that we see ourselves as a wide party of consultants and other design professionals.

"We didn't want to name the practice with our own names, we wanted to remove the ego part of it ... to be a true design collective.

"It's all about like-minded, talented people."

During the past month, the practice had doubled its full-time staff, Mr Letherbarrow said.

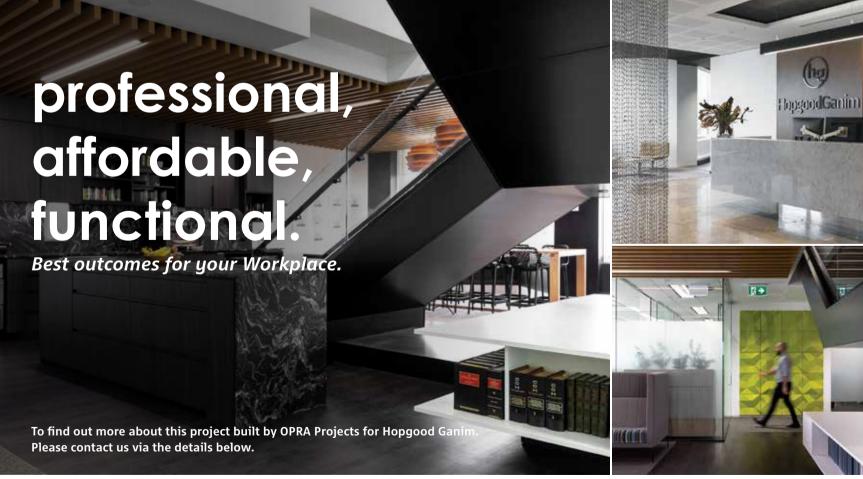
However, the principals were mindful of growing too rapidly, and planned for steady development of a team of 10-12 this year.

Growth of that nature could place the firm among the top 10 of WA's largest architecture practices, as ranked by the number of full-time WA-based registered architects on Business News's Data & Insights (see page 44).

Messrs Letherbarrow and Soto said launching the firm during what could be a defining time for density design in Perth had been a rewarding experience, with design becoming more important in response to some of the challenges the community typically raised (such as height, overshadowing, bulk and scale).

"We've been advocates for medium-density design and advertising codes, all of us contributed to those while at Hillam," Mr Letherbarrow said.

"And we just think we can do things better; we've got a wealth of experience from Hillam, with some of those projects starting to lead the way in residential design."







**€** Flexibility will have to be a part of the DNA of most organisations

- Kath Kusinski

Kath Kusinski (left) and Jacqui Williams from MKDC Design Consultants. Photo: David Henry

# Office design driven by utility

The shift to working from home amid COVID-19 lockdowns has highlighted the need for better-designed spaces.



Katie McDonald katie.mcdonald@businessnews.com.au

LAST month's snap lockdown was a timely reminder for businesses that employees enjoy freedom of choice when it comes to their working environment.

And it is increasingly apparent that what a working environment looks like is changing.

Whether employees are working from the kitchen bench or office cubicle, holding Zoom meetings from the couch or a desk, MKDC Design Consultants believes the debate is bigger than the home versus office argument: it's about the flexibility and function of a space.

That's evidenced by the increase in utilisation studies undertaken by the Western Australia-based interior design practice since the pandemic emerged.

MKDC co-founder and design director Kath Kusinski said utilisation studies, which assessed how a workspace was used, were being requested by organisations committed to analysing how office design affected staff.

Ms Kusinski said the increased uptake of the studies had been driven by worker resistance to a return to the office, and the growing body of research around the



benefits of an office environment that arose during the pandemic.

Boosting team morale and fostering the types of innovation that could grow a business, she said, were just some activities better facilitated face to face.

"I don't think we'll ever get back to ... nine to five in the office," Ms Kusinski said. "Flexibility will have to be a part of the DNA of most organisations.

"It's now about creating those [flexible] 'sticky spaces' for socialisation, communication, collaboration ... things that bring people back to the office.

"It's not just, are you sitting at your desk? It's, when you're in the office, where are you?

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"Are you standing up having quick meetings, or are you sitting down? Are you in a meeting room on a Zoom or conference call, or are you with a group of people?

"It's risen to that level of enquiry now."

MKDC associate director Jacqui Williams said this had forged a closer relationship between HR departments and architects, with more emphasis on the purpose of a space related to the core functions of a business: people, place and technology.

Ms Williams said WFH was not a blanket arrangement; lifestyles differed (solo, roommates, family living), as did the quality of a home, and not everyone had the means to invest in ergonomic furniture or extra computer monitors as corporate offices did.

These were all factors influencing productivity, she said, with WFH and COVID-19 accelerating the flexible workplace model of catering to different working styles.

That included promoting non-dedicated work points (i.e. non allocation of desks), collaborative areas, quiet rooms, phone booths, meeting rooms or stand-up meeting desks, dedicated technology spaces, and lunch areas

Ms Williams said the importance of outdoor areas had also increased since the pandemic, with more businesses now incorporating courtyards and balconies as extensions of dedicated working or socialisation areas.





"The big question we get is, 'do we need more space?'" she said.

"We're dealing with clients refreshing their workplace strategies, responding to their needs with the space they've got, or looking for new space to expand."

That was the beauty of the flexible workplace design model, Ms Kusinski said: agile in its ability to future-proof an office, to accommodate more or less staff, while respecting social distancing requirements.

Ms Kusinski pointed to MKDC's recent office refurbishment project for the Western Australian Treasury Corporation (WATC) at 225 St Georges Terrace as an example: it had increased staff but retained the same floorplate.

MKDC removed enclosed single offices (which created more space to play with) and adapted a flexible workplace strategy, including an array of working spaces (solo and collaborative), phone booths and lockers, which supported hot desking.

WATC's new office also features a larger staff hub area for dining and socialisation than previously.

"That's the number one place where innovation happens; it's the water cooler [philosophy] but on steroids," Ms Williams said.

She said the staff hub was where people typically went before or after meetings, or for lunch, with ideas exchanged in a less formal setting where people felt more comfortable to share.

WATC's self-check-in reception was another key fitout feature, which Ms Williams said had risen in popularity during COVID-19, facilitating contactless arrivals with options for temperature checks.

Considering employee wellness through biophilic design (connection to the natural environment) pre-dated COVID-19, she said, however, the pandemic had further emphasised workplace health, with plants, timber and other earth elements featured throughout WATC's office.

Mirroring hospitality interiors was an additional emerging trend, Ms Williams said, which built on the residential feel designers had infused in office environments in recent years.

"It's the idea of curating an experience, which is a big drawcard in attracting and retaining staff," she said.

Ms Kusinski said that translated to clients, with the role a CBD office's commercial value played in winning business not to be underestimated.

"Our clients want to be near their clients," she said.

"The office is really a destination now; the exciting places that have the tech, the social [aspect] and the right mix of space.

"Build it, and they will come."

## **WA'S LARGEST ARCHITECTURE FIRMS**

## Data & Insights

Ranked by No. of architects in WA, then by total staff in WA



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Rank	Change from previous year	Company name	Senior executive and title	Year est. in WA	Offices a) WA b) inter- state	No. of principals/ directors in WA	No. of full-time registered architects in WA	No. of design profes- sionals in WA		% of Busi- ness-Ar- chitec- ture	Recent major projects
1	_	Hames Sharley	Mr Caillin Howard Managing director	1976	a) 1 b) 5	9	30	79	84	70%	Hay Street Mall office redevelopment (Hames Sharley Perth Studio), Karrinyup Shopping Centre, One Subiaco, Essence Apartments, Australis at Rossmoyne, Forrest Chase, Carillion Shopping Centre, TL Robertson Library
2	<b>1</b>	Hassell	Mr Brenden Kelly Principal, WA	2004	a) 1 b) 3	9	23	81	90	65%	Elizabeth Quay Lot 5+6, One The Esplanade, Kings Square Fremantle, E-Zone at The University of Western Australia, Murdoch Knowledge & Health Precinct, Karingal Green
3	Ψ	Taylor Robinson Chaney Broderick	Mr Eamon Broderick Director	1995	a) 1	4	NFP	45	50	70%	Scotch College Middle School, Curtin University Engineering Pavilion, Scarborough Foreshore Redevelopment, Canning City Centre, Northshore Christian Grammar, Mundaring Christian College, DFO Perth, Rowethorpe Village Masterplan
4	<b>^</b>	MJA Studio	Mr Wes Barrett Managing director	1999	a) 1 b) 1	3	18		38	90%	The Grove Apartments, Glyde St Apartments Mosman Park, Victoria House Apartments, Student Housing Northbridge, Cirque apartments, Bottleyard Apartments, White Sands Scarborough
5	Ψ	Cameron Chisholm Nicol	Mr Dominic Snellgrove Managing director	1884	a) 1	4	15	32	38	80%	194 West Coast Highway for Sentinel, Ningana Aged Care for SwanCare, RAAFA Retirement Living Apartments and Club House Bull Creek, The Pocket Claremont, Shenton Quarter, Amara City Gardens, Mabel Park Jolimont, 30-34 Ord St West Perth
6	Ψ	Oldfield Knott Architects	Mr Ian Oldfield Executive chair	1973	a) 1	3	NFP	NFP	35	90%	The Camfield Tavern (Burswood), Pine View Primary School, Grandis Primary School, Collie Multi Purpose Bush Fire Management Facility, Florida Beach Shopping Centre, The Vic Hotel, Capel Police Station, Kensington Fire Station, Mandurah Police Station
7	<b>^</b>	Silver Thomas Hanley	Mr Tony Di Leo Director	1953	a) 1	2	13	52	52	90%	Curtin University Grains Research Laboratory Building, St John of God Hospital Subiaco, Opal Carine Residential Aged Care, Fiona Stanley Hospital, Joondalup Health Campus, Hollywood Private Hospital, Albany Hospital, St John of God Hospital Murdoch
8	Ψ	Parry and Rosenthal Architects	Mr Paul Rossen Director	1959	a) 1	NFP	12	20	22	70%	Ridge View Secondary, John Curtin, Halls Head and Dalyellup Colleges. Sacred Heart, Aquinas, Trinity, Irene McCormack and St Norbert Colleges. Presbyterian Ladies' College, Perth College, Bunbury Cathedral Grammar School
9	Ψ	Cox Architecture	Mr Greg Howlett Principal director	1967	a) 1 b) 5	6	11	33	40	80%	Capital Square, Oman Museum Across Ages, St Andrews Tower, Carnarvon Police & Justice Precinct, Office of the Premier and Cabinet, Channel 9 Headquarters
10	Ψ	Hillam Architects	Mr David Hillam Owner, principal	2005	a) 1	5	NFP	35	39	80%	OBH Redevelopment, Eden Floreat, Lumiere South Perth, The Dunes Scarborough
11	<b>^</b>	Carabiner	Mr David Karotkin Managing director	1995	a) 1	2	9	21	22	80%	State Football Centre, Pilbara Port Authority Integrated Marine Operations Centre, HBF Arena Redevelopment, Cockburn Aquatic and Recreation Centre, Osborne Park Hospital, Lakelands Country Club, Carnarvon Aged Care
12	_	CHRISTOU Design Group	Mr James Christou Managing director	1985	a) 1 b) 1	NFP	NFP	NFP	20	85%	Ellenbrook Leisure Centre, South Perth Recreation and Aquatic Centre, Gnarabup Beach Resort, Perth Zoo Function and Cafe Precinct, WA Recovery Projects - 4 Primary Schools
13	Ψ	T&Z Architects	Mr Jeremy Feldhusen Director	1964	a) 1	3	9	18	20	85%	Applecross ACF, PTA Mandurah Car Park, Carine SHS, Retirees WA ACF, WesTrac, Yanchep Lagoon Primary School, Joondalup TAFE, Midland TAFE, Kinross ACF, International School of WA, Hedland High School, Belmont ACF
14	<b>ψ</b>	Hodge Collard Preston Architects	Mr Nicholas Preston Managing director	1976	a) 1	3	9	17	18	90%	Albany, Busselton, Karratha & Kalgoorlie Hilton Hotels, Marriott Moxy Hotel, IBIS Styles Hotel, Coles Supermarkets, Frankland Park Sports / Community Facility, Treeby Sports / Community Facility , Brabham Shopping Centre, Hawker Park Primary School
15	¥	Hunt Architects	Mr Con Lampropoulos Group director	1970	a) 1 b) 1	4	8	16	20	85%	Armadale Courthouse and Police Complex, Albany Health Campus Radiation Oncology Centre, GenesisCare Radiation Oncology Centre Murdoch, Collie Health Campus Redevelopment, Aegis Shoreline North Coogee, Aegis Shorehaven Alkimos
16	<b>V</b>	KPA Architects	Mr Todd Paterson Director	1974	a) 1	1	8	14	17	80%	Bethanie Gwelup Aged Care, Bethanie Peel Stage 2 Apartments, Koh I Noor Contemporary Care, Italian Aged Care, Bethanie Esprit Retirement Villas, Bethanie Beachside Retirement Villas, Kwinana Marketplace Redevelopment, Singleton Village Shopping Centre
17	¥	iredale pedersen hook architects	Mr Adrian Iredale Director	1999	a) 1 b) 1	2	8	9	12	80%	WA Museum 5 Galleries, Yagan Square, Pingelly Recreation and Cultural Centre, Billy Koort Boodja: Northam Aboriginal and Environmental Centre, King Square (Manatj Park) Perth WA, Kununurra New Courthouse, Children and Family Centre (Kununurra and Roebourne)
18	<b>^</b>	SPH architecture + interiors	Mr Jamie Penn Director	2007	a) 1	4	7	19	25	60%	Wearne Cottesloe Redevelopment (Stage 1), Keiki Joondalup Early Learning Centre, MercyCare Ellenbrook Early Learning Centre, Western Power Forrestdale Depot, Western Power Pinjarra Depot, Western Power Perth Metropolitan Control Centre and Primary Control Room

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All information compiled using surveys, publicly available data and contact with industry sources. Other companies may be eligible for inclusion. If you believe your company is eligible, please email: claire.byl@businessnews.com.au

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